

## Industrial cooling systems RKV



INDUSTRIAL COOLING AND HEATING



# Industrial cooling and heating.

**Partner of the industry for over 45 years.**

Since 1971 **DELTATHERM®** has belonged to **Hirmer GmbH**, a family business with its headquarters in Much near Cologne, one of the leading German manufacturers of cooling and temperature control systems. In three plants, 120 employees produce and distribute about 10,000 chillers, temperature control units, heating and cooling equipment and cooling components per year. All plants are located in the greater Cologne area. **DELTATHERM®** has a plant of its own for manufacturing casings and cabinets. We also have our own software development and build our own control electronics. Working closely together with our customers, our engineers are happy to develop special solutions and individual designs. 120 service partners support our plant customer service in 60 countries on 6 continents. We always have 95% of all replacement parts in stock, ready for dispatch within 24 hours. Quality, process safety, ease of maintenance and user-friendliness are our top priorities.

The safety of your production plants and of the production process are, to a large extent, dependent upon how well and how reliably your processes are temperature-controlled or cooled. At **DELTATHERM®**, qualified specialists - from trained tradespeople to master craftsmen and engineers - ensure the optimal mixture of planning, project engineering, diligent manufacturing methods and thorough quality control. Our planning and construction department, the building of our own control electronics and software development as well as our own plant for metal working all ensure that we have almost the entire vertical range of manufacture for temperature control units in-house. Purchased components such as pumps, valves, relays etc. are acquired from market-leading or renowned manufacturers.

All devices and systems are subject to a comprehensive functional test before dispatch. Because we are fully aware of what a plant standstill and the resulting production downtimes can cost our customers, we offer:

- Global plant service
- Service hotline to our experts, in German and English
- All standard components in stock and available globally in the shortest time by express mail
- Replacement part availability > 95%
- More than 120 service partners with locations on 6 continents – in Europe, North America, South America, Africa, Asia and Australia
- 24-hour online service, through which we can check and maintain your systems
- Ensuring the productivity of your **DELTATHERM®** machines

 Made  
 in  
 Germany

## RKV series

### Compact cooling units and cooling systems for medium capacities.

This model series was developed on the basis of comprehensive research and many years of practical experience by **DELTATHERM®** and further improved upon. Through a series of measures cooling capacity, efficiency and operational reliability were further improved and in this way a trend-setting cold water heat exchanger generation was designed.

The **DELTATHERM®** industrial cooling systems of the RKV series consist of the following components: cold water circuit, water circuit and electrical technology, completely fitted in one housing. The cooling of the circulation medium (normally water, optionally also antifreeze, oil or deionised water) is carried out by a heat exchanger, which is known as the evaporator.

The **DELTATHERM®** industrial coolers, which are ready for connection and have been tested by our in-house performance testing equipment are already completely equipped in the basic version. For customer-specific requirements a comprehensive option package is available, with which we are able to fulfil all of our customers' technically feasible wishes.

### The functional principle

#### The cooling circuit

The cold fluid circuit is mainly made of a compressor, an air-cooled condenser, expansion valve and evaporator. In accordance with the process requirements, also radial condensers (for the air duct connection), split condensers (outer/inner unit) and a water-cooled condenser version are offered. We only use CFC-free coolants such as e.g. R134a and R407C. All cooling components are made by renowned brand manufacturers and guarantee reliability, long service life and global availability. The entire cooling circuit is designed for the optimal and economic function of the industrial cooler and corresponds to the most recent standards of the CE directive and of DIN EN 378.

#### The electronics circuit

The entire electronics is designed for the optimal functioning of the industrial cooler and corresponds to the latest standards of the CE directive and of DIN EN 60204. In all models of the RKV series, the precise temperature control is carried out by a microprocessor-controlled digital temperature controller. All RKV industrial coolers are suitable for indoor installation and can optionally also be installed outside.

#### The water circuit

The components of the water circuit are as standard made from stainless material and completely fitted in the stable industrial housing. The water tank is made from very stable and water-neutral plastic with tank cover (stainless steel tank as an option). The hydraulic decoupling of the water circuit from the cold fluid circuit enables endless areas of application in industry. The complete water circuit is fitted in the device with a circulation pump, pump manometer, pump overflow valve for pump protection, complete pipework as well as a diffusion-proof and highly efficient insulation. The water circuit (piping, evaporator and pumps) is designed for a defined flow volume and pressure. Different pumps are available for special requests (more pressure and/or higher flow volume). Circulation media other than water (e.g. oil) are, of course, also feasible. The design as a through-flow cooler (without tank, possibly without pump) is also feasible.

#### Short specification of the standard equipment

- Compact device tested by us in-house, in test run lasting several hours
- Compact interior housing for inside installation
- Device standing on wheels (RKV 1.5 - RKV 10.5)
- Device standing on tracks (RKV 11.5 - RKV 18.5)
- Painted in RAL 7012
- Air-cooled condenser with copper pipes and aluminium lamellae, extremely efficient
- Axial fan, extremely low-noise and maintenance-free with contact protection
- CFC-free coolant
- Hermetic compressor, 100% suction-gas cooled
- Evaporator as plate heat exchanger or pipe coil heat exchanger
- Thermostatic expansion valve for coolant injection
- High and low-pressure switch
- Water circuit with tank, pump, manometer, pump bypass
- Automatic water filling via float gauge
- Piping of the water circuit made from stainless material (iron-free)
- Water tank made from plastic, heat-insulated
- Pumps made from bronze or stainless steel
- Digital controller with target and actual value display
- Switching and control elements completely wired
- External on/off switching
- Potential-free collective fault indicator
- Automatic power adjustment
- Optical water level display
- CE-compliant
- Cooling technology designed according to EN 378 part 2
- Electronics designed according to EN 60204
- RoHS and REACH-compliant

## Available options

- Outdoor installation
- Air filter mat
- Radial fans
- Split design
- Water-cooled condenser
- Low-noise design
- Cold fluid outlet temperature < +8 °C
- Water temperatures up to 40 °C
- Temperature stability  $\pm 0.2$  K
- Refrigeration gauge for high and low-pressure side
- Overflow valve
- Fixed bypass
- Multi-circuit system
- Heat recovery
- Flow monitor with analog or digital signal
- Water filter
- Gate valves in flow and return
- Tank filling, pressureless, from outside
- Automatic water refilling
- Tank heating for temperature control
- Check valves and solenoid valves for the water circuit (consumer higher than coolant)
- Water circuit made from stainless or PVC for deionised water
- Conductance monitoring
- Pump switch-off
- Air filter mat monitoring
- Wire marking
- Continuously variable speed regulation of the fans
- Heavy-duty connector (e.g. Harting)
- 24 V AC/DC control voltage
- Special voltages and frequencies (50/60 Hz)
- Limit temperature monitoring
- Differential temperature control
- External temperature sensor
- Cabinet heating, cabinet fan
- Bus connection, e.g. profibus DP
- Individual fault indicators (in the plain text display or as bit technology)
- RAL special colours upon request

Series type RKV		1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	17.5	18.5
Cooling performance at water inflow	kW																		
	+10 °C	6,4	7,6	9,0	11,0	13,9	18,0	22,0	25,0	29,0	33,0	37,0	43,0	50,0	58,0	68,0	75,0	87,0	102,0
	+15 °C	7,8	9,2	10,9	13,0	16,5	22,0	27,0	30,0	35,0	40,0	45,0	51,0	60,0	71,0	82,0	91,0	105,0	120,0
	+20 °C	9,3	11,0	13,0	16,0	19,7	26,0	32,0	36,0	42,0	48,0	55,0	62,0	72,0	84,0	98,0	108,0	126,0	147,0
Compressor drive	kW	1,7	2,0	2,4	2,9	3,5	4,7	5,5	6,2	7,2	8,2	9,3	11,1	12,4	14,4	16,2	18,6	21,6	24,3
Air capacity	m³/h	4500	4500	4500	4500	4500	12000	12000	12000	12000	15900	31800	31800	31800	31800	31800	47700	47700	47700
Number of fans		1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3
Pump capacity	m³/h	1,2	1,5	1,8	2,2	2,7	3,7	4,6	5,1	6,0	6,8	7,8	8,6	10,3	12,2	13,8	15,7	18,0	21,0
Pump drive	kW	0,65	0,65	0,65	0,65	0,65	1,2	1,2	1,2	2,3	2,3	2,3	2,3	4,0	4,0	4,0	4,0	4,0	4,0
Pump pressure	bar	4,0	3,9	3,6	3,4	3,1	3,8	3,4	3,0	2,8	2,4	3,3	3,0	5,3	5,0	4,5	4,2	4,0	3,5
Connection capacity	kW	3,2	3,5	3,9	4,4	5,0	7,1	7,9	8,6	10,7	12,1	14,8	16,6	19,6	21,6	23,4	27,4	30,4	33,1
Tank contents	l	60	60	60	60	60	150	150	150	150	150	200	200	200	200	200	400	400	400
Water connections	DN	25	25	25	25	25	40	40	40	40	40	40	40	40	40	40	50	50	50
Dimensions about																			
Width	mm	600	600	600	600	600	750	750	750	750	750	750	750	750	750	750	750	750	750
Length	mm	600	600	600	600	600	750	750	750	750	750	1500	1500	1500	1500	2250	2250	2250	2250
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	2010	2010	2010	2010	2010	2010	2010	2010
Empty weight: about	kg	165	190	220	240	260	315	325	350	390	480	580	590	610	630	650	820	850	890

**Water temperature range:** from +8 °C to +25 °C (other ranges on request)

**Type of cooling:** air-cooled using axial fan (water-cooled or using radial fan on request)

**Electrical connection:** 3x400 V PE 50 Hz (other voltages and frequencies on request)

**Designed ambient temperature:** +32 °C (higher and lower temperatures on request)

**Range of application of the industrial cooler:** from +8 °C to +42 °C ambient temperature (higher and lower temperatures on request)

**Circulation medium:** drinking water (according to specification) with a spread of about 5K between water inlet and outlet (other ranges on request)





*„We focus on only one thing: customer satisfaction. We achieve satisfaction through our high product quality, permanently available service and the highest level of flexibility, through which we find individual solutions for all requirements. And we live out this claim - every day, for over 45 years.“*

Sascha and Mario Hirmer  
Managing Directors

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## Further products from our product range



Industrial series cooling towers  
with open or closed circuits from  
80 to 18,000 kW cooling capacity



Dry and hybrid coolers for water, oil  
or emulsion from 0.5 to 15,000 kW  
cooling capacity



Rack chillers in the power range from  
0.15 to 3 kW cooling capacity; as  
heat exchanger up to 10 kW



Industrial cooling machines for water,  
oil and emulsion from 0.2 to 5,000 kW  
cooling capacity



Temperature control systems for water  
up to 160 °C and oil up to 350 °C



Immersion chillers for water, oil  
and emulsion from 1.7 to 115 kW  
cooling capacity

Technical modifications and errors reserved.

